

REMARKS

Applicants note that claims 1, 2 and 4 – 7 stand withdrawn from consideration.

By the present amendment, the specification has been amended at page 20 to refer to a pipe 13 having a volumetric capacity portion, with page 21 being amended to refer to a volumetric capacity portion of the pipe 13, as illustrated in Fig. 6 of the drawings of this application. Furthermore, claim 3 has been amended and new claims 8 - 10 presented.

Applicants note that the present invention is directed to a chemical analysis apparatus which reduces water hammer, and which inhibits the solution drop which is discharged from being scattered. More particularly, referring to Figs. 5A and B of the drawings of this application, there is shown by the broken line curve the oscillating pressure or vibration energy of the fluid of the prior art without the features of the present invention, which vibration energy contributes to scattering of a fluid drop, whereas the solid line curve represents the curve of the present invention, as illustrated in Fig. 6, for example, and which, as described in the paragraph bridging pages 20 and 21 of the specification enables absorption of a vibration energy contained in the fluid and enables inhibition of scattering of a discharged drop of the fluid. More particularly, as described with respect to Fig. 6, which is the elected species of the present invention, and as described with respect to Fig. 1, at page 8 of the specification, a probe 10 is fixed to a probe arm 20 and a pump 30 is piped to the probe 10 via a tube 11 of the probe arm 20. As described at page 8, the probe is configured so that an inner diameter is 0.8 mm, and an outer diameter is 1.2 mm, whereas the tube 11 is constituted by a resin tube having an inner diameter of 1.5 mm, an outer diameter of 2.3 mm, a length of 2m, and a material of polyfluoroethylene. As described in connection with Fig. 6 in the paragraph bridging

pages 19 and 20 of the specification, in a pipe position between the probe arm 20 and the syringe pump 30, as represented by the volumetric capacity portion of the pipe 13, an expanded area is provided having a larger cross-sectional area than the cross-sectional area of the tube 11, which expanded area of the pipe has an inner diameter about 5 mm, and a length of about 10 mm, and which enables absorbing of a vibration energy contained in the fluid and inhibiting of scattering of a fluid drop, as described in the paragraph bridging pages 20 and 21 of the specification. More particularly, such paragraph sets forth a range of minimum and maximum values for the cross-sectional area in relation to the cross-sectional area of the resin tube as well as a range of minimum and maximum lengths with respect to a length of the resin tube. Further, as is apparent from Fig. 6, the expanded area of the pipe extends at an angle of substantially 90° with respect to a horizontal plane.

By the present amendment, claim 3 has been amended to more clearly set forth the structural and functional features of the present invention, as described above, and new dependent claims 8 - 10 recite further features of the elected species of Fig. 6, such that claim 3, as amended, and newly added dependent claims 8 – 10 should be considered at this time.

As to the rejection of claim 3 under 35 USC 103(a) as being unpatentable over Takahashi (US 5,037,612), in view of Eherts (US 6,426,048), this rejection is traversed insofar as it is applicable to the present claims, and reconsideration and withdrawal of the rejection are respectfully requested.

Turning to Takahashi, as recognized by the Examiner, “Takahashi fails to teach an enlarged area having a larger cross-sectional area than a cross-sectional area of the pipe in the probe arm portion in the pipe.” The Examiner, recognizing this deficiency of Takahashi, cites Eherts contending that Eherts teaches a supplying

mechanism in an analyzing apparatus for mixing and pumping liquids, wherein the supplying mechanism comprises an enlarged area (40) having a larger cross-sectional area than a cross-sectional area of the pipe in the probe arm portion (12) in the pipe as shown in Fig. 4. The Examiner contends it would have been obvious to one having ordinary skill in the art to provide the device of Takahashi with an enlarged area positioned between the probe arm portion and the pump portion to achieve the predictable results to further mixing a reagent in the sample in the supplying mechanism before analysis. In accordance with the disclosure and teaching of Eherts, as described in column 3, lines 55 – 59, “The hydraulic line 30 includes an inclined mixing section 40 that has an angle of inclination in the range of approximately 5 to 45 ° below a horizontal axis 42. Preferably the mixing section 40 has an angle of inclination of approximately 15° below the horizontal axis 42. Thus, the enlarged area of the mixing section or mixing chamber 40, as described in Eherts, enables mixing of a test sample and a dilutant together without inclusion of an air bubble in the mixture. Eherts does not disclose or teach an enlarged portion of a connection portion between the resin tube and the pump which enables absorption of vibration energy of a fluid and inhibiting scattering of a fluid drop, as now recited in claim 3, as amended. Thus, applicants submit that irrespective of the contentions by the Examiner, the combination of Takahashi and Eherts fails to provide the recited features of claim 3, and the dependent claims thereof.

With respect to the newly added dependent claims, applicants note that irrespective of the contentions by the Examiner of Eherts providing an enlarged area, Eherts does not disclose or teach the enlarged area enabling absorption of the vibration energy of the fluid, and inhibiting of scattering of a fluid drop, which is discharged from the probe portion. Moreover, Eherts provides no disclosure or


teaching of the minimum and maximum cross-sectional area nor the minimum and maximum length of the enlarged portion, with respect to that of the cross-sectional area and the length of the resin tube of the probe portion, as recited in new dependent claim 8. Likewise, Eherts does not disclose or teach that the resin tube has an enlarged cross-sectional area with respect to that of the probe portion, as recited in claim 9, nor that the enlarged portion extends at an angle substantially 90° with respect to a horizontal plane, which extension angle is contrary to the specific disclosure of Eherts that the mixing section 40 extends at an inclination with respect to the horizontal. Thus, applicants submit that the dependent claims recite further features not disclosed or taught by this proposed combination of references, and all claims should be considered allowable thereover.

In view of the above amendments and remarks, applicants submit that all claims under consideration, i.e., claims 3 and 8 – 10, patentably distinguish over the cited art and should be considered allowable thereover. Accordingly, issuance of an action of a favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 500.43442X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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